

Transportation Data Program

A Multi-Lab Coordinated Project

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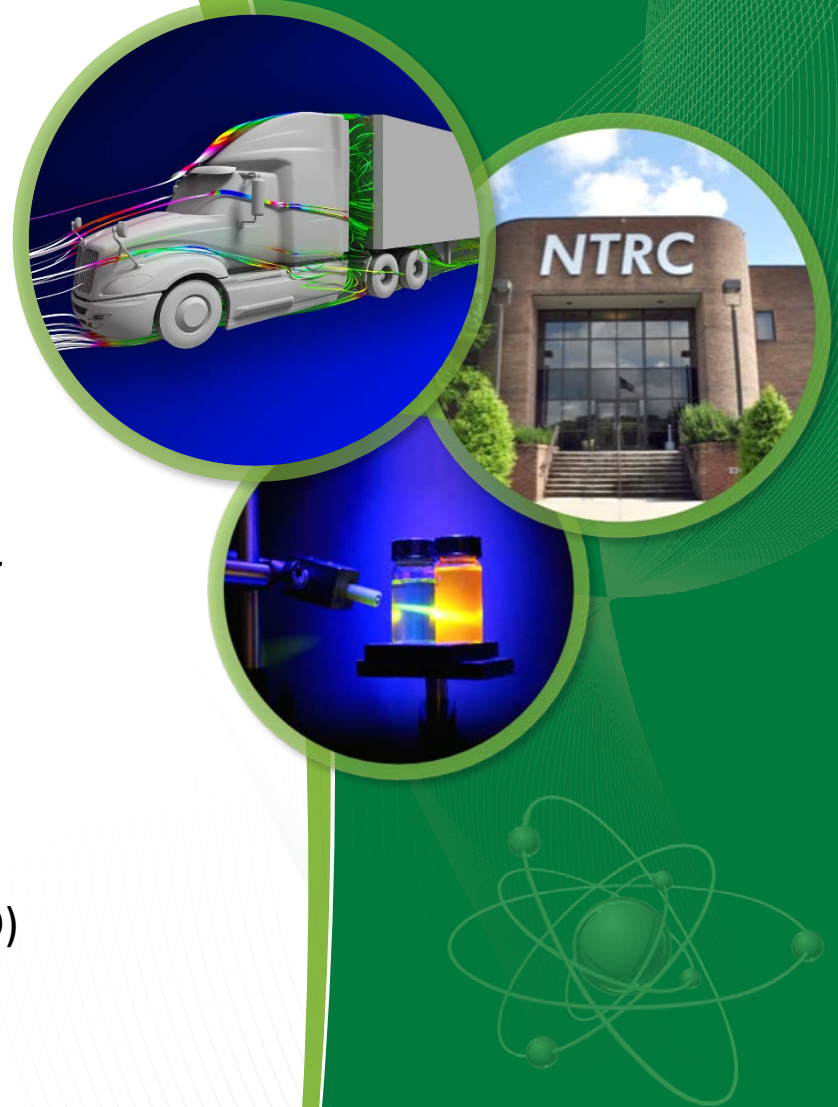
David Gohlke, ANL

June 21, 2018

2018 U.S. DOE Vehicle Technologies Office (VTO)

Annual Merit Review Meeting

June 18-21, 2018



Overview

Timeline



- Project start date: October 2017
- Project end date: September 2018
- Percent complete: 90%

Barriers



- Barriers addressed
 - *Multi-Year Program Plan 2011 - 2015*
Section 2.6 Outreach, Deployment and Analysis A, B, C
Section 3.2 Program Analysis

Budget



- Total project funding
\$450K

Partners



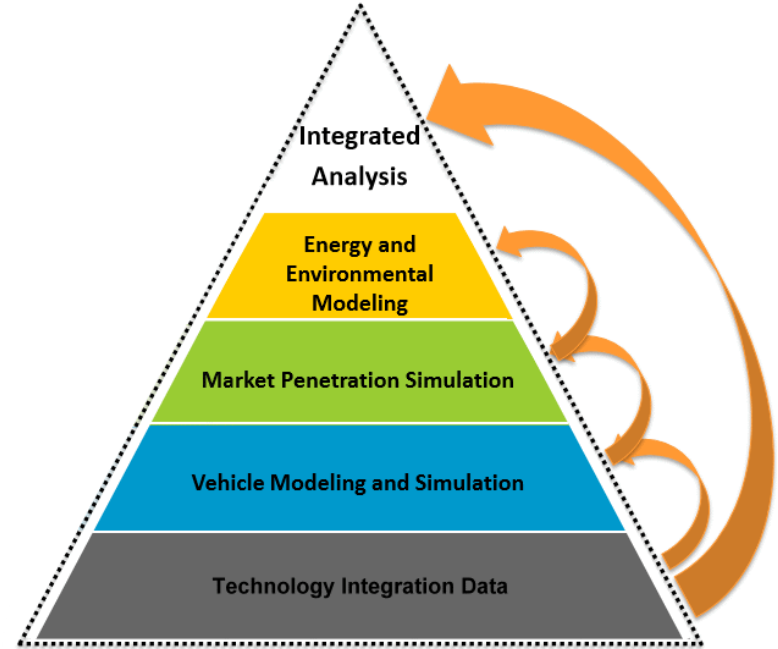
- Oak Ridge National Laboratory (ORNL)
- Argonne National Laboratory (ANL)

Project Objectives

The objective of the Transportation Data Program is to provide consistent, quality data and information on the transportation sector for VTO researchers and other transportation analysts' use.





The Transportation Data Program disseminates data in each of the Technology Integration Goal Areas:

- National Security
- Economic Growth
- Affordability for Business and Consumers
- Reliability/Resiliency



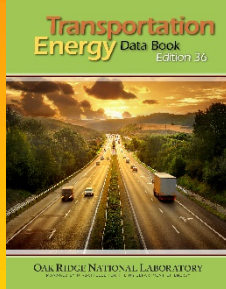
- Transportation analysts, and VTO staff require current and historical data to affect good decisions for the future.
- Technology integration data provide the foundation of the Analysis Program in the pursuit of moving people and goods using the most secure, energy-efficient, and cost-effective technologies.

Milestones

Quarter		Milestone Description	Milestones for the Transportation Data Program FY17	Milestones for the Transportation Data Program FY18
Quarter 1		U.S. E-drive Monthly Sales Report prepared monthly for posting on the E-drive website	Complete	Complete
Quarter 2		Figure on comparison of U.S. E-drive annual sales with China/Europe	Complete	Complete
Quarter 3		Fact of the Week prepared weekly for posting on the Vehicle Technologies website	Complete	On track
Quarter 4		Draft of Transportation Energy Data Book delivered to VTO	Complete	On track
Quarter 4		Go/no-go milestone Determine if VTO research efforts require continued transportation data program support	Complete	On track

Approach – Data Book

Since 1975

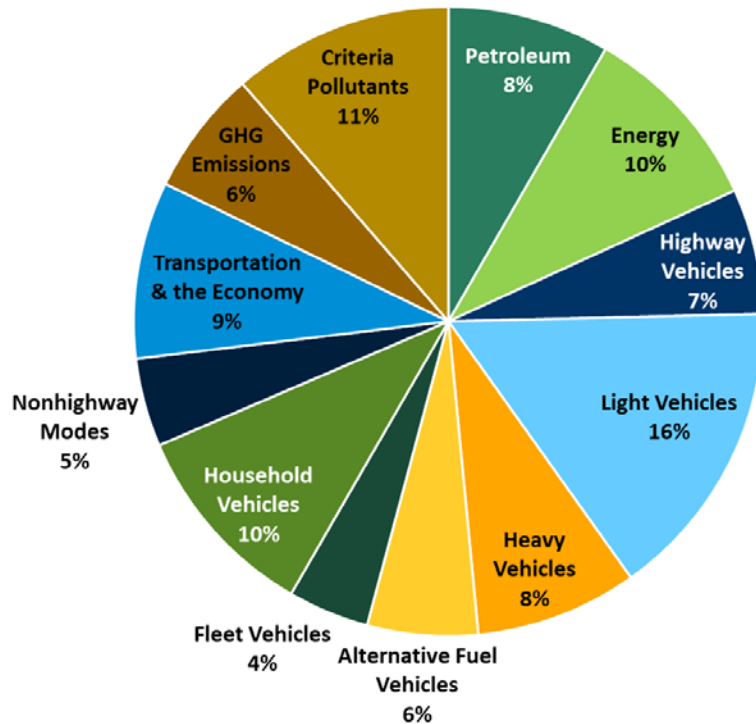


On-line report
<http://www.cta.ornl.gov/data>

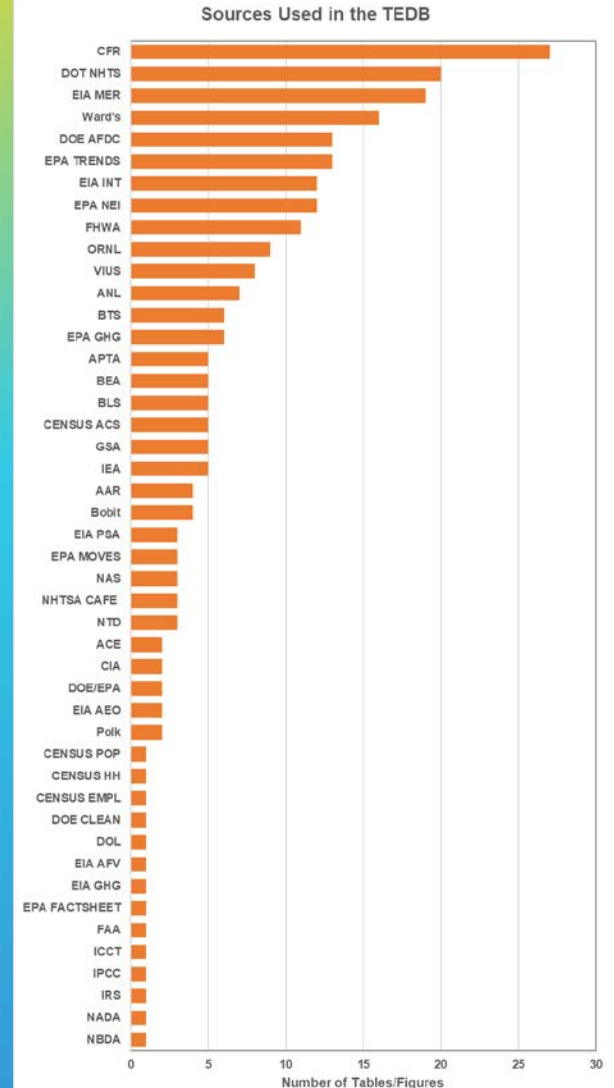
PDF & Excel formats

Twelve Chapters, 212 Tables and 52 Figures

Table/Figure Subjects in TEDB Edition 36



About 50 different sources



Approach – Data Book

Unique “Big Energy Table”

- Energy use in Btu by mode and fuel type
- Appendix A holds sources and assumptions
- About 20 sources
- Added electricity use to light vehicles two years ago (documented estimates)

Car and Light Truck Population Data

FHWA discontinued this in 2009;
ORNL/ANL develop estimates each year to
continue the series

Value-Added:

- Combine data to present unique data series.
- Present data from different tables/reports to show a unique perspective.

In data sheet electricity has been income available, an attempt is made to incorporate from this into table. However, assumptions must be made in order to do this. Please see Appendix A for a description of the methodology used to develop these data. See Table 2.15.9 for transportation per-person use in financial terms per year

Table 2.7
Domestic Consumption of Transportation Energy by Mode and Fuel Type, 2010^a
(trillion Btu)

	Gasoline	Diesel	Gasoline and diesel equivalent	Jet fuel	Residual oil fuel	Electric	Other ^b	Total ^c
PERSONS	13,434.0	1,760.3	15,194.3	—	—	33.9	3.4	26,981.6
Auto/truck	12,478.2	1,612.7	14,090.9	—	—	—	2.4	14,093.3
Light truck	7,551.5	1,078.6	8,630.1	—	—	—	0.6	8,630.7
Motorcycle	58.0	—	58.0	—	—	23.0	0.3	81.3
Plane	—	—	—	—	—	—	—	—
Train	—	1.1	1.1	0.7	—	23.0	0.3	25.1
Ship	—	—	—	—	—	—	—	—
Medium/heavy trucks	490.5	5,862.5	264.0	—	—	—	—	5,816.0
Class 1 trucks	—	1.0	1.0	—	—	—	—	1.0
Class 2 trucks	—	48.5	48.5	0.2	—	—	—	48.7
NONPERSONS	22.8	—	22.8	2,588.4	404.6	406.9	364.2	3,179.7
NO	—	—	—	—	1,091.1	—	—	1,091.1
Electric streetcar	—	—	—	—	—	—	—	—
Electric streetcar or trolley	—	—	—	—	—	—	—	—
Tram	—	—	—	—	—	—	—	—
Interstate	372.4	388.4	—	437.4	404.6	—	—	1,202.8
Waterway	—	—	—	—	—	—	—	—
Foreign	10.4	123.0	—	—	—	—	—	133.4
Domestic	19.0	165.4	—	—	—	—	—	184.4
Plane	—	—	—	—	—	406.9	364.2	771.1
Class 1	—	—	—	—	—	—	—	—
Class 2	—	—	—	—	—	—	—	—
Freight	—	—	—	—	—	—	—	—
Domestic Class 1	—	—	—	—	—	—	—	—
Domestic Class 2	—	—	—	—	—	—	—	—
Freight	—	—	—	—	—	—	—	—
Domestic	—	—	—	—	—	—	—	—
Domestic	—	—	—	—	—	—	—	—
Domestic	—	—	—	—	—	—	—	—
TOTAL Btu	13,456.8	1,760.3	15,217.1	2,588.4	404.6	746.8	407.4	20,124.6

^aSource: See Appendix A, Section 2: Energy Use Sources.

^b = Certain consumption only. Totals may not include all possible uses of the transportation (e.g., agriculture).

^c Only used and not necessarily used for electricity. Persons outside electricity energy use for the electricity which is used primarily for electricity.

^d = Totals may not add due to rounding.

^e = Two ways, one way use.

^f = One half of fuel used for domestic versus an international operation.

TRANSPORTATION ENERGY DATA BOOK: EDITION 2016—2017

B-4

The data in this table from 1952 to 2008 are DO NOT include winners, prizes, or spot-wish volume. Much of the data for 2008 are were estimated, the FY2009 is larger public-benefit and full data for care. A methodology change for the number of years required affected the data in 2002.

Table 4.1
Summary Statistics for Care, 1970-2005

Year	Representative (millions)	Median years (thousands)	Age-weight (millions)	Full cost (billions \$/yr)	End use (billions \$/yr)	Full savings (billions \$/yr)
1970	206.79	1.263	3,460	74.26	33.3	
1980	121.61	1.110	3,341	59.91	21.9	
1989	127.80 ¹					
1990	130.86					
1987	131.42					
1988	133.52					
1989	134.50					
1990	141.708					
1991	128.21					
1992	125.51					
1993	127.27					
1994	127.80					
1995	130.28					
1996	129.78					
1997	129.46					
1998	130.42					
1999	131.49					
2000	132.61					
2001	133.61					
2002	135.01					
2003	135.76					
2004	136.61					
2005	146.58					
2006	137.00					
2007	155.01					
2008	152.48					
2009	144.68					
2010	130.87					
2011	122.67					
2012	121.76					
2013	113.96					
2014	113.84					

Note: The data for the 2000s are estimated, the FY2009 is larger public-benefit and full data for benefits. Excludes care, a methodology change for the number of years required affected the data since in 1992.

Table 4.2
Summary Statistics for Two-Act, Full Data, 1970-2005

Year	Representative (millions)	Median years (thousands)	Age-weight (millions)	Full cost (billions \$/yr)	End use (billions \$/yr)	Full savings (billions \$/yr)
1970	206.79	1.263	3,460	74.26	33.3	
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1993	127.27					
1994	127.80					
1995	130.28					
1996	129.78					
1997	129.46					
1998	130.42					
1999	131.49					
2000	132.61					
2001	133.61					
2002	135.01					
2003	135.76					
2004	136.61					
2005	146.58					
2006	137.00					
2007	155.01					
2008	152.48					
2009	144.68					
2010	130.87					
2011	122.67					
2012	121.76					
2013	113.96					
2014	113.84					

1970-2015 0.7%
2007-2015 0.2%

SOURCE: 2008 U.S. Department of Transportation,
Washington, DC, 2001, Table V04-2
continuous. www.fhwa.dot.gov

* This number differs from BHS data on
Full cost for care population.
* Beginning in the year 2008 the data for care
may have been previously inflated.
* Due to FHWA methodology change

1970-2008 U.S. Department of Transportation, Federal Highway Administration, Highway Statistics
Washington, DC, 2001, Table V04-2 Personal from 1970-2008, 2008, Section 2.2 Appendix A
(Additional resources: www.fhwa.dot.gov)

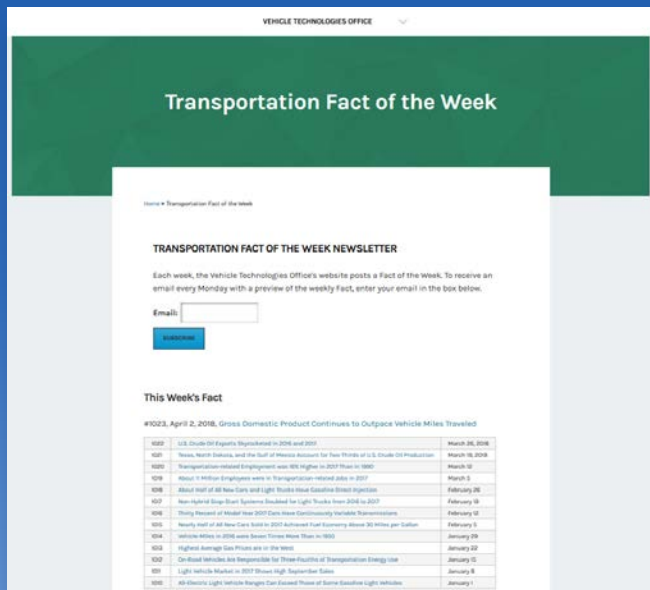
* Beginning in the

Approach – FOTW

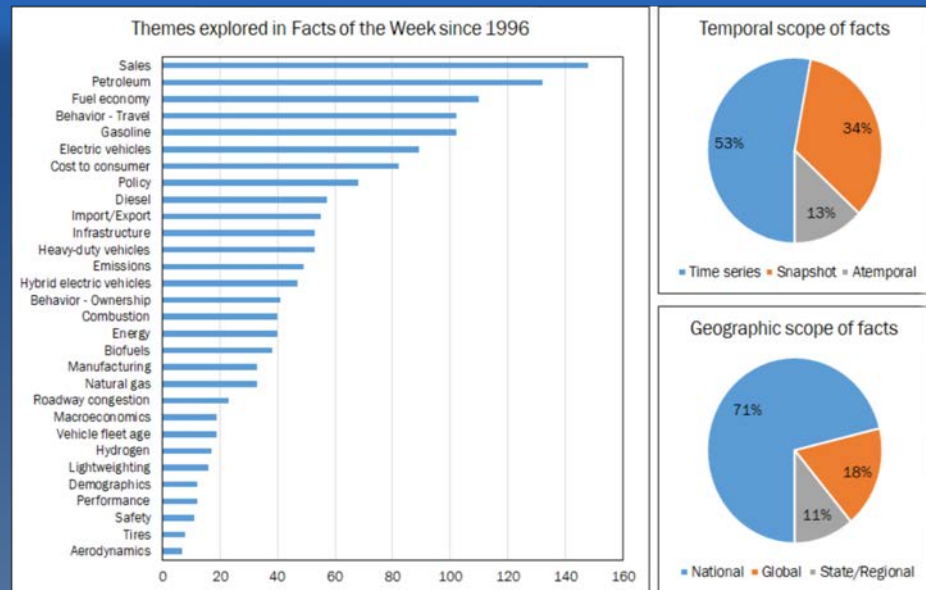
Since 2001



- Fact consists of a graphic, explanatory text, source, and an Excel file.
- Fact is posted on the VTO website every Monday.
- Fact is emailed to an ever-growing subscription list every Monday.



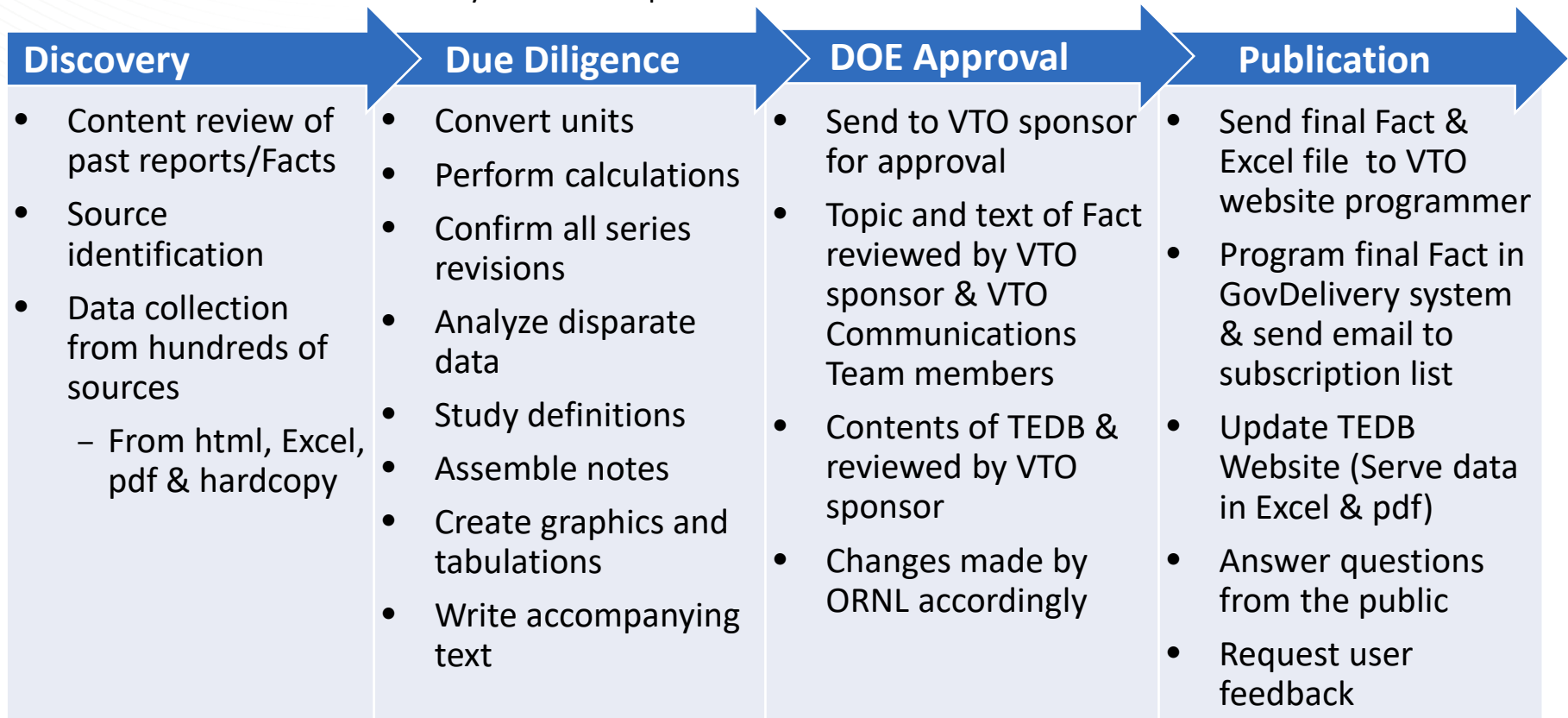
<http://energy.gov/eere/vehicles/transportation-fact-week>



Approach – Data Book & Fact of the Week

Barrier Addressed: Provides consistency to improve analyses of the transportation sector which contribute to policies, programs, and technologies. Provides a wealth of data and information which reduces the burden on VTO analysts to compile the data individually.

- The Data Book is mostly tabular historical data, especially good for modeling use.
- The Fact of the Week is widely varied on topic and source.



Primary mechanism: Publish data and information in PDF, Excel, and HTML on VTO and ORNL websites for VTO researchers and others to access.

Approach - E-Drive Data & Analysis

Barriers Addressed: Provides readily-used monthly sales by make and model, estimates impact of light-duty electrification, analyzes regional sales patterns to improve modeling of the electric-drive vehicle ecosystem, and supports other DOE programs.

- Provides reference data for vehicle choice modeling and DOE/EERE impact analysis.
- Compares the U.S. with other worldwide leading PEV markets (e.g. China, Europe)

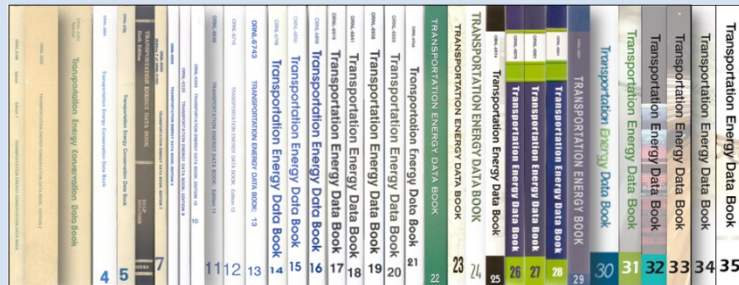
Topic	Data and Analysis Types (Examples)
U.S. E-drive sales	Monthly sales of HEV, PHEV and BEV
International sales	Monthly sales of HEV, PHEV and BEV in China, Europe
Infrastructure	Targets, number of charging stations (by type)
Regional sales pattern	Contributing factors to PEV adoption Comparison between major MSAs

Primary mechanism: Monthly E-drive vehicle sales by make and model of four global markets (Canada, China, Europe, Japan and U.S)

Technical Accomplishments and Progress for the Data Book

What's New for FY18

Older editions accessible from the website



<https://cta.ornl.gov/data/editions.shtml>

Data Book updates twice a year

Edition 36 published December 2017

Edition 36.1 published April 2018

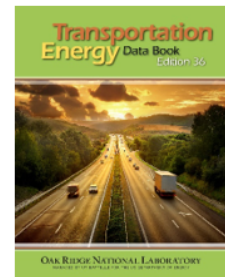
Edition 36.2 will be published in August 2018

Edition 37 draft due at end of FY

Going eco-friendly

The Transportation Energy Data Book is going ECO-FRIENDLY!

Beginning this year, the *Data Book* will not be printed in hardcopy format, but will be posted on-line in both PDF and spreadsheet format at the website <http://cta.ornl.gov/data>. Edition 36 has been recently posted to the website. One advantage to this is that updates to the report can be made throughout the year when new source material becomes available, instead of waiting for a once-a-year update. A new edition reflecting all changes will be released annually. To be notified annually when the new edition is released, email DavisSC@ornl.gov.



Feel free to print the full PDF document if you continue to prefer a hardcopy. For those without access to a computer, please call Stacy Davis at 865-946-1256 to discuss options for access to the document.

4-12

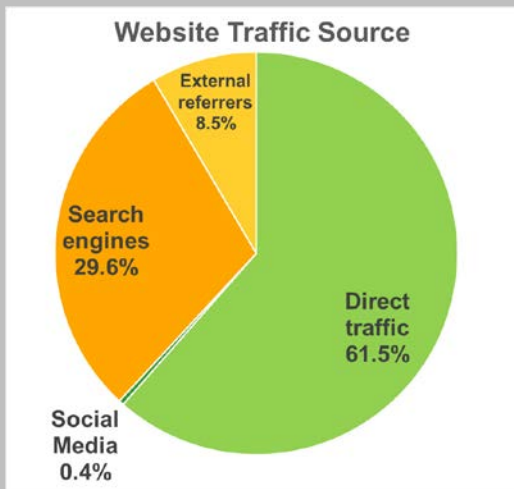
The average fuel economy of cars more than doubled from 1973 to 2016 while the average fuel economy of light trucks grew by 84% in that same time period. This was not steady annual growth, but growth in the 1970's and early 1980's followed by a long period with little improvement. Growth resumed around 2008-2009.

Table 4.11 (Updated April 2018)
Production and Production-Weighted Fuel Economies of New Domestic and Import Cars, Light Trucks and Light Vehicles, Model Years 1975-2016*

Model Year	All Cars		All Light Trucks		All Light Vehicles	
	Production (Thousands)	Fuel Economy (mpg)	Production (Thousands)	Fuel Economy (mpg)	Production (Thousands)	Fuel Economy (mpg)
1975	8,241	17.3	1,977	11.6	10,214	13.1
1980	9,441	20.0	1,961	12.1	14,502	16.2
1985	10,379	23.7	2,081	13.5	14,460	17.2
1990	11,074	25.7	2,291	14.2	15,365	18.8
1995	10,526	23.8	2,039	13.3	14,565	17.9
2000	10,845	24.1	2,450	15.8	15,295	19.9
2005	10,126	23.6	2,327	17.6	14,453	21.4
2010	8,875	23.5	1,740	17.4	12,615	21.2
2015	8,748	23.3	1,825	17.8	12,573	21.3
2016	8,350	22.9	1,824	17.7	12,172	20.8
2017	8,559	23.0	1,831	17.5	13,390	20.9
2018	8,747	23.0	1,578	17.2	14,325	20.4
2019	9,616	23.3	1,529	17.0	13,145	20.2
2020	9,111	23.1	1,494	16.7	11,604	19.4

<http://cta.ornl.gov/data>

Technical Accomplishments and Progress for the Data Book



Page Views, Downloads, Citations

Month-Year	Page Views	PDF Downloads	XLS Downloads
October 2017	6,515	1,089	1,236
November 2017	6,822	1,555	1,416
December 2017	6,049	668	765
January 2018	6,546	686	978
February 2018	6,452	566	1,174
March 2018	5,750	500	916

Google Scholar Citations

About 3,030

Top External Referring Domains

en.wikipedia.org

links.govdelivery.com

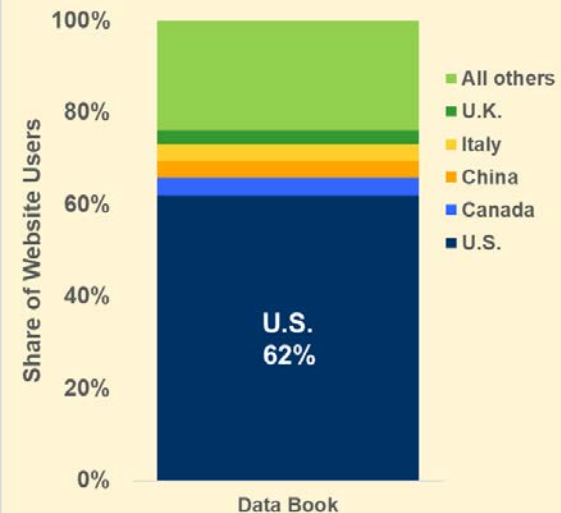
www.energy.ca.gov

www.climatecentral.org

www.ornl.gov

www.eia.gov

Geographic Location of Website Users



Technical Accomplishments and Progress for the Data Book

Rank	PDF Files	Description
1	Full_Doc.pdf	Full Document
2	Chapter02.pdf	Energy
3	Chapter04.pdf	Light Vehicles and Characteristics
4	Chapter03.pdf	All Highway Vehicles and Characteristics
5	Chapter05.pdf	Heavy Vehicles and Characteristics
6	Chapter06.pdf	Alternative Fuels and Advanced Technology Vehicles and Characteristics
7	Chapter08.pdf	Household Vehicles and Characteristics
8	Chapter11.pdf	Greenhouse Gas Emissions
9	Chapter07.pdf	Fleet Vehicles and Characteristics
10	Chapter10.pdf	Transportation and the Economy
11	Highlights for Edition 36	Highlights for Edition 36
12	Chapter01.pdf	Petroleum
13	Quick_Facts.pdf	Quick Facts inside document front cover
14	Chapter09.pdf	Nonhighway Chapter
15	Appendix_B.pdf	Conversions

Unique
“big energy table”
and FHWA tables
reflected in both
lists

Rank	Excel Files	Description
1	Table8_03.xls	Household Vehicle Ownership, 1960–2015 Census
2	Table8_01.xls	Population and Vehicle Profile, 1950–2015
3	Table4_01.xls	Summary Statistics for Cars, 1970–2015
4	Table5_02.xls	Summary Statistics for Class 7-8 Combination Trucks, 1970–2015
5	Table5_01.xls	Summary Statistics for Class 3-8 Single-Unit Trucks, 1970–2015
6	Table6_02.xls	Hybrid and Plug-In Vehicle Sales, 1999–2016
7	all_spreadsheets.xls	Zip file of all Data Book spreadsheets
8	Table2_08.xls	Transportation Energy Use by Mode, 2014–2015
9	Table2_03.xls	Distribution of Transportation Energy Consumption by Source, 1950–2016
10	Table8_02.xls	Vehicles and Vehicle-Miles per Capita, 1950–2015
11	Table2_07.xls	Domestic Consumption of Transportation Energy by Mode and Fuel Type, 2015
12	Table4_03.xls	Summary Statistics for Light Vehicles, 1970–2014
13	Table2_14.xls	Passenger Travel and Energy Use, 2015
14	Table6_01.xls	Estimates of Alternative Fuel Highway Vehicles Made Available, 2004-2015
15	Table3_04.xls	U.S. Cars and Trucks in Use, 1970–2015

E-drive data →

Technical Accomplishments and Progress for the Fact of the Week

Num	Title	Date
1031	Three-fourths of All Workers Drove Alone to Work in 2016	May 28, 2018
1030	Plug-in Vehicles Consumed Nearly Two Terawatt-hours of Electricity in 2017	May 21, 2018
1029	Plug-in Vehicles Displaced 216 Million Gallons of Gasoline in 2017	May 14, 2018
1028	The Price of a Gallon of Premium Gasoline Averaged 50 Cents Higher than Regular Gasoline in 2017	May 7, 2018
1027	Manufacturers Recommend Premium Gasoline for 47% of New Vehicle Models in 2017	April 30, 2018
1026	Nearly Two-Thirds of U.S. Plug-In Vehicles Were Assembled in the United States	April 23, 2018
1025	China's Plug-in Vehicle Market Share was More Than Double That of the U.S. for 2017	April 16, 2018
1024	Changes in Vehicle Miles of Travel Often Mirror Gasoline Price Changes	April 9, 2018
1023	Gross Domestic Product Continues to Outpace Vehicle Miles Traveled	April 2, 2018
1022	U.S. Crude Oil Exports Skyrocketed in 2016 and 2017	March 26, 2018
1021	Texas, North Dakota, and the Gulf of Mexico Account for Two-Thirds of U.S. Crude Oil Production	March 19, 2018
1020	Transportation-related Employment was 16% Higher in 2017 Than in 1990	March 12, 2018
1019	About 11 Million Employees were in Transportation-related Jobs in 2017	March 5, 2018
1018	About Half of All New Cars and Light Trucks Have Gasoline Direct Injection	February 26, 2018
1017	Non-Hybrid Stop-Start Systems Doubled for Light Trucks from 2016 to 2017	February 19, 2018
1016	Thirty Percent of Model Year 2017 Cars Have Continuously Variable Transmissions	February 12, 2018
1015	Nearly Half of All New Cars Sold In 2017 Achieved Fuel Economy Above 30 Miles per Gallon	February 5, 2018
1014	Vehicle-Miles in 2016 were Seven Times More Than in 1950	January 29, 2018
1013	Highest Average Gas Prices are in the West	January 22, 2018
1012	On-Road Vehicles Are Responsible for Three-Fourths of Transportation Energy Use	January 15, 2018
1011	Light Vehicle Market in 2017 Shows High September Sales	January 8, 2018
1010	All-Electric Light Vehicle Ranges Can Exceed Those of Some Gasoline Light Vehicles	January 1, 2018
1009	Nearly Five Billion Trips Were Made Using Transit Rail in 2016	December 25, 2017
1008	Median All-Electric Vehicle Range Grew from 73 Miles in Model Year 2011 to 114 Miles in Model Year 2017	December 18, 2017
1007	California has over 15,000 Electric Vehicle Charging Units, Ten Percent of which are Fast Chargers	December 11, 2017
1006	Plug-in Electric Vehicle Charging Infrastructure Needs for Nationwide Coverage	December 4, 2017
1005	Eleven Diesel Models for Sale in the U.S. in Model Year 2017	November 27, 2017
1004	California Had the Highest Concentration of Plug-in Vehicles Relative to Population in 2016	November 20, 2017
1003	Cars Constituted a Larger Fraction of Light-Duty Vehicle Sales for Fleets than Retail Vehicle Sales in 2016	November 13, 2017
1002	The Trade Deficit of Petroleum in 2016 Was at its Lowest Since 1998	November 6, 2017
1001	One Thousand Transportation Analysis Facts of the Week have been Published Online	October 30, 2017
1000	U.S. Petroleum Production Met Demand from Transportation Petroleum Consumption in 2015	October 23, 2017
999	Despite Rise in Vehicle Miles of Travel, Highway Pollutants in 2016 Are Less Than Half as in 2002	October 16, 2017
998	Highway Vehicles Responsible for a Declining Share of Pollutants	October 9, 2017
997	Average Age of Cars and Light Trucks Was Almost 12 Years in 2016	October 2, 2017

<http://energy.gov/eere/vehicles/transportation-fact-week>

TRANSPORTATION FACT OF THE WEEK NEWSLETTER

Each week, the Vehicle Technologies Office's website posts a Fact of the Week. To receive an email every Monday with a preview of the weekly Fact, enter your email in the box below.

Email:

> 11,500
subscribers
to the
Fact of the Week
Monday email
distribution



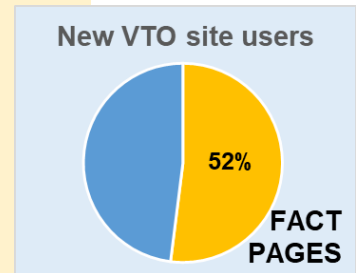
OAK RIDGE
National Laboratory

NATIONAL
TRANSPORTATION
RESEARCH CENTER

Technical Accomplishments and Progress for the Fact of the Week

- The Fact of the Week accounted for 33% of all VTO website pageviews in FY 2017
- About 52% of new VTO site users came into the site through the Fact of the Week
- In the most visited VTO website pages:

Fact 915, Average Historical Annual Gasoline Pump Price from 1929-2015
Fact 861, Idle Fuel Consumption of Selected Gasoline and Diesel Vehicles



ENERGY.GOV

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

Vehicle Technologies Office

October 23, 2017

Celebrating the 1,000th Transportation Analysis Fact of the Week

The U.S. Department of Energy is celebrating its 40th birthday this month and the [Transportation Analysis Fact of the Week](#) reached its own milestone.

On October 23, 2017, the [Vehicle Technologies Office published Fact #1000](#). The Transportation Analysis Fact of the Week was first published on July 12, 1996, as a means of highlighting data trends for DOE staff and the transportation community at large.

Popular topics explored in the Fact of the Week include vehicle fuel economy, petroleum use and production, vehicle sales, and traveler behavior. Facts related to advanced combustion technologies and vehicle electrification have become more popular in the last few years.

The Fact of the Week is updated online every Monday and released via newsletter. Last year they were viewed over 160,000 times. [Click here to subscribe to future Facts of the Week.](#)



Word cloud showing most frequently used words in titles of first 1000 Facts of the Week – generated at <https://www.jasondavies.com/wordcloud/>

FOTW #1000, October 23, 2017: U.S. Petroleum Production Met Demand from Transportation Petroleum Consumption in 2015

OCTOBER 23, 2017

DOE celebrated the 1,000th Fact in October

An ANL / ORNL collaborative report on the Fact of the Week was released the same month.

Historical Review of the Transportation Analysis Fact of the Week, 1996–2017



David Ockles
Stacy Davis

October 2017

Approved for public release.
Distribution is unlimited.

OAK RIDGE NATIONAL LABORATORY

managed by UT-Battelle for the U.S. Department of Energy



OAK RIDGE
National Laboratory

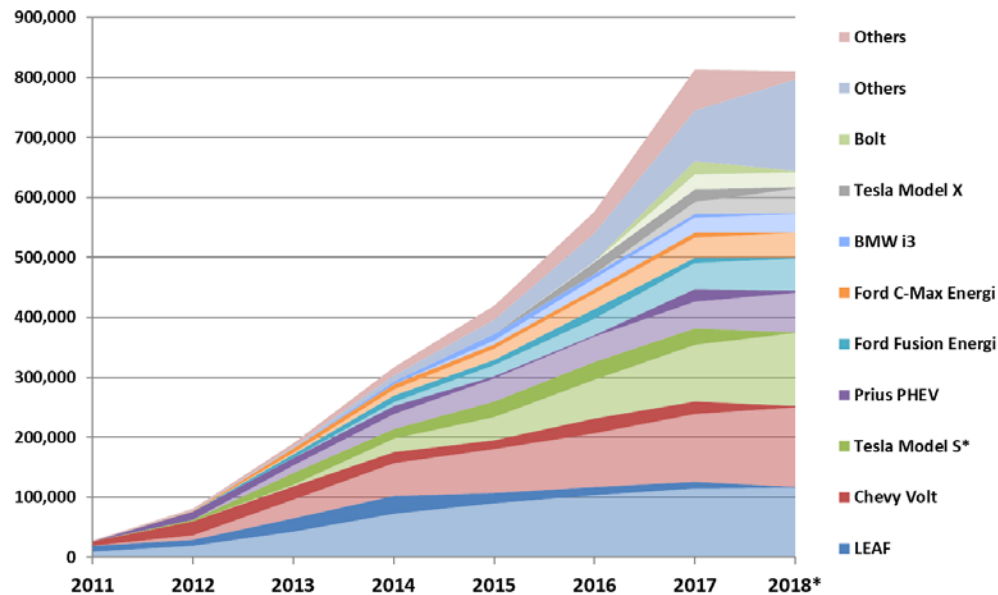
NATIONAL
TRANSPORTATION
RESEARCH CENTER

Technical Accomplishments for E-Drive Data

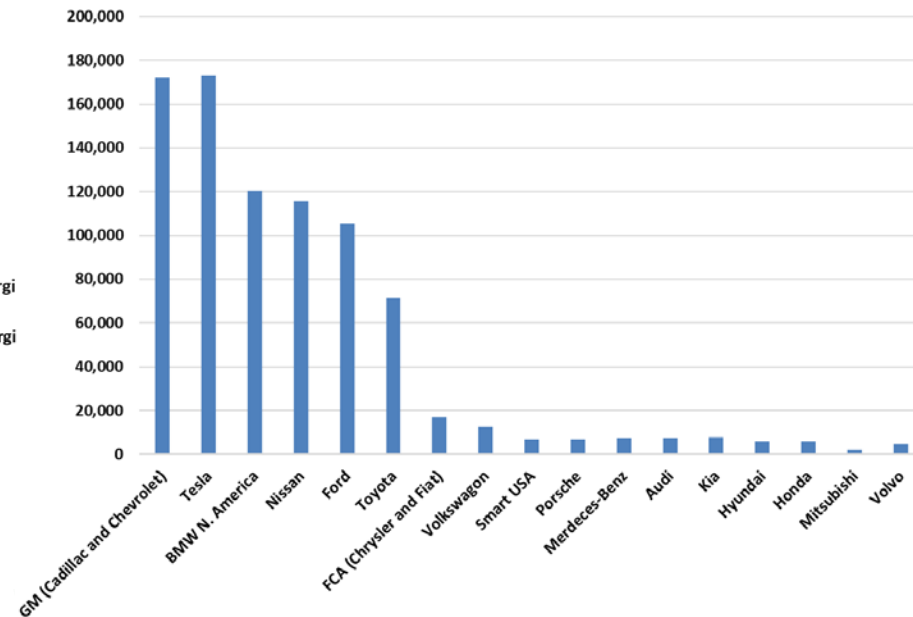
Extensive use of data products by DOE programs and other agencies

- Successfully published sales on website monthly <http://www.anl.gov/energy-systems/project/light-duty-electric-drive-vehicles-monthly-sales-updates>
- Supported DOE/EERE programs and activities such as Transportation Fact of the Week

Cumulative PEV Sales by Model



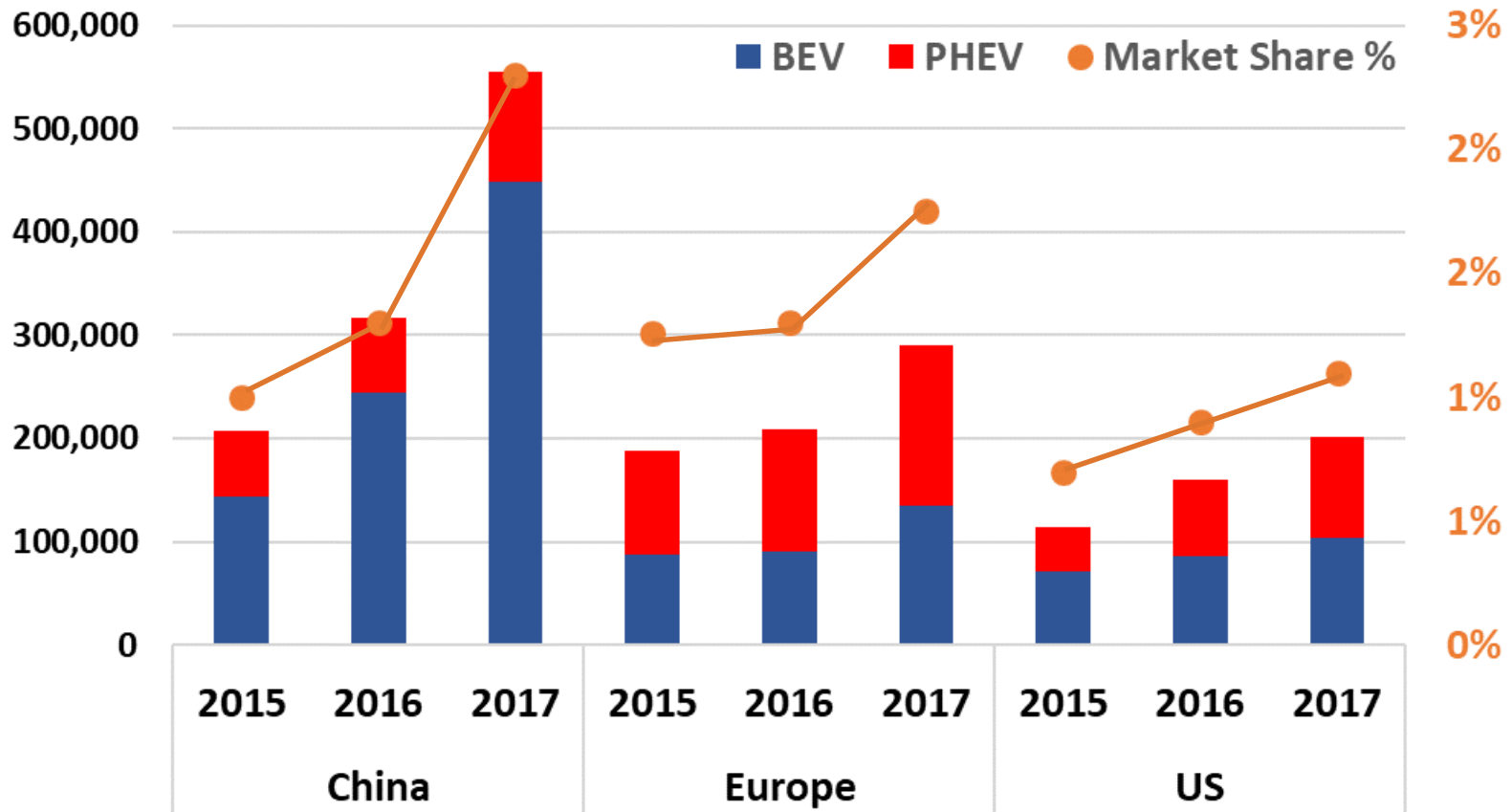
Cumulative PEV Sales by OEM



Updated to February, 2018

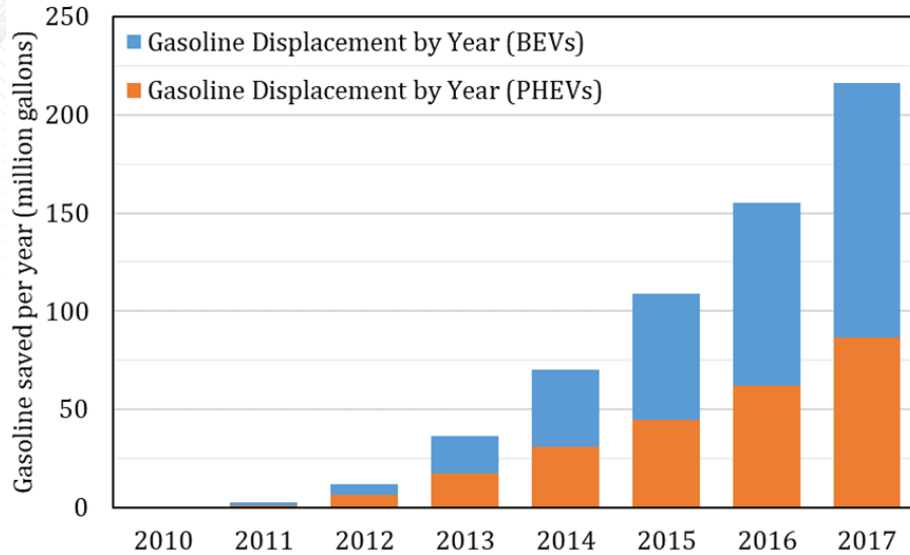
Technical Accomplishments for E-Drive Data

- China's PEV market share was more than double that of the U.S. for 2017
- Europe's PEV market share also experienced rapid growth in 2017



Technical Accomplishments for E-Drive Data

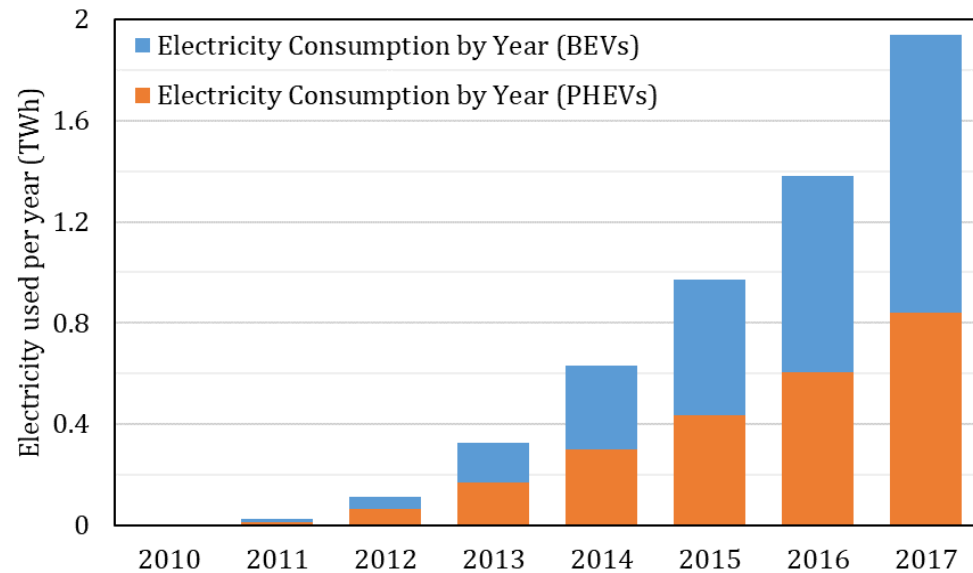
Gasoline Displacement due to PEVs by Year



From 2010-2017, a total of 5.4 terawatt-hours of electricity have been consumed by PEVs

From 2010-2017, PEVs have offset over 600 million gallons of gasoline, 353 million gallons by BEVs and 248 million gallons by PHEVs

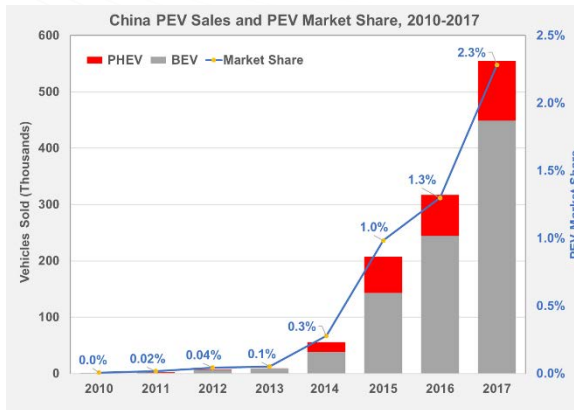
Electricity Consumption by PEVs by Year



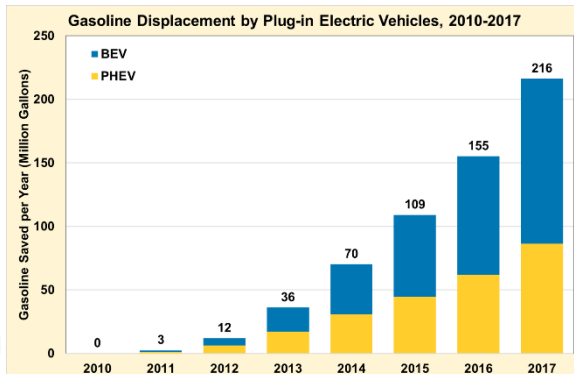
Collaboration and Coordination Among Project Team

ORNL and ANL work together to meet the data needs of the VTO Transportation Analysis Program and work with other National Labs to showcase their work to a wider audience. Typically, through a Fact of the Week referencing the work.

ANL's E-drive data
Fact #1025, April 16, 2018



ANL's Electrification Impact Report
Fact #1029, May 14, 2018



ANL collaborates with Tsinghua University, Beijing, China, & European Alternative Fuels Observatory, Brussels

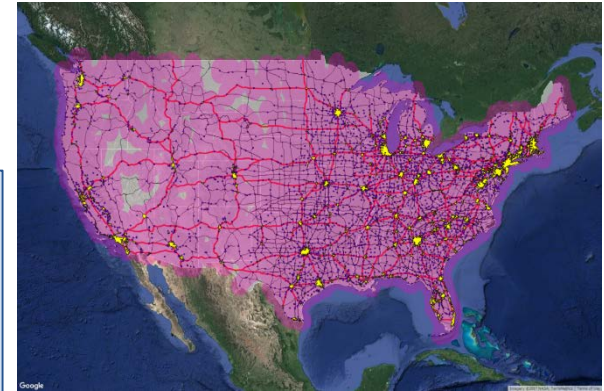
ORNL works with many public & private entities in the data collection process

ORNL and ANL regularly collaborate with VTO on the VTO Quarterly Analysis Review (QAR) and the VTO Analysis Newsletter.

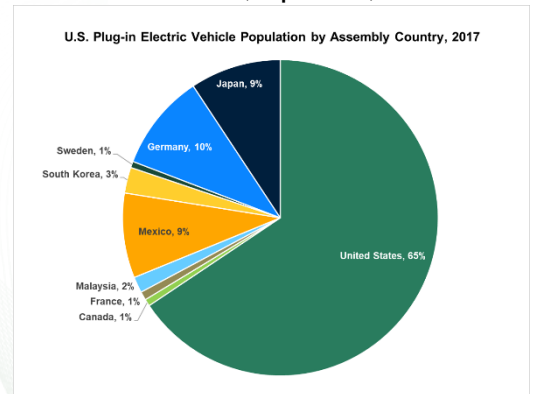
ORNL works closely with:

- VTO staff who approve each Fact of the Week.
- ANL staff who program and post the Fact of the Week on the VTO website.

NREL's infrastructure analysis
Fact #1006, December 4, 2017



ANL's Electrification Impact Report
Fact #1026, April 23, 2018



Impacts

Data collected in the Transportation Data Program provides input data to other VTO programs and other agency's models, such as:

MA3T

GREET

ADOPT

Parachoice

GPRA analysis

DOE eGallon Initiative

DOE Advanced Technology Manufacturing Loans Program

National Science Foundation website

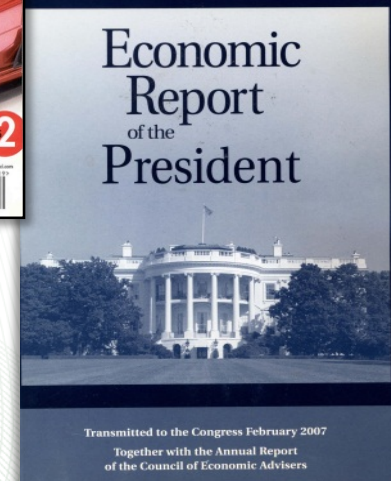
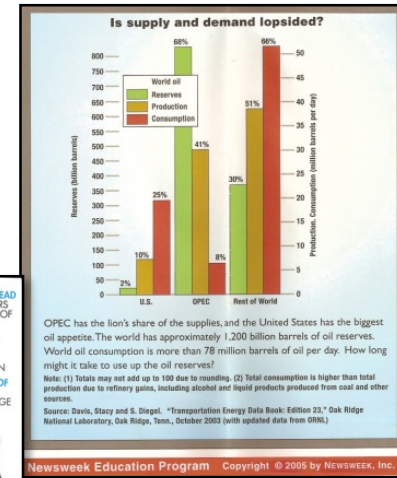
EPA MOVES

EIA NEMS

In the past, the Data Book has been cited in Popular Science, Newsweek Education Program, and the Economic Report of the President

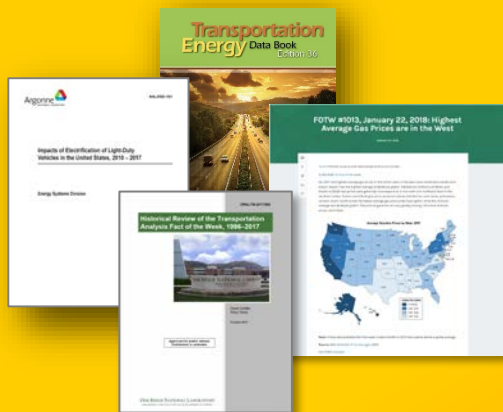
The Data Book has over 3,000 Google Scholar citations and the Fact of the Week is sent to >11,500 subscribers weekly

The Data Book is also used by Congressional staff, auto manufacturers, state governments, universities (professors & students), libraries, federal agencies, and more.

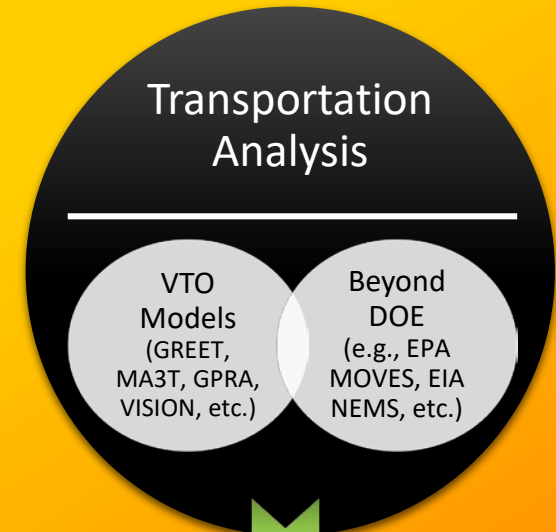


Summary

Successful weekly, monthly, and annual milestones delivered on-time and within budget – improving over time



Collaboration with government, private sector, academia, & other laboratories



New policies, programs and technologies addressing transportation efficiency

Move people and goods using the most secure, energy-efficient, and cost-effective technologies.

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Kelly Fleming

*Office of Vehicle Technologies
US Department of Energy*

Philip Patterson, retired

*Formerly of the Office of Vehicle Technologies
US Department of Energy*

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